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The Contribution of Behavioral Economics in Explaining the Decisional Process

Andreea Gradinaru[a,*]

[a]*Faculty of Economics and Business Administration / Department of Economics, Alexandru Ioan Cuza University, Iasi, Romania*

Abstract

The purpose of this paper focuses on highlighting the contribution of behavioral economics in explaining the decision-making process. For a proper study of the attitudes and mechanisms of the decision-making process, one must take into consideration subjective and psychological aspects of behavioural economics, that move the rational behaviour from the traditional terms presented in the classical and neoclassical literature in new coordinates. It is expected that this approach of the decision making process to hinder economic development models, but taking into account all factors involved in how individuals make decisions, it will allow a better explanation of the economic problems and finding suitable solutions.

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Keywords: cognitive heuristics, behavioral economics, prospect theory, decision making.

1. Introduction

The central element of the research is highlighted in the title, the study represents an attempt to capture the theoretical elements that underlie decision-making in the new branch of science, behavioral economics, which has been developed mainly since the ‘50s of the last century.

The subject is an intellectual challenge that sparks the curiosity and desire for research by analyzing literature, reports and studies prepared by the competent institutions.

Behavioral economics has become a research direction in economic science due to the paradoxes of rational choice theory that it has generated. Moreover, it is a branch of economics that studies the way in which people take concrete decisions on a daily basis, putting into question the traditional economy postulates. It’s study is interdisciplinary,

* Corresponding author.
E-mail address: gavrilutaandreea@yahoo.com (A. Gradinaru)

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predominated by psychology, but including elements of philosophy, epistemology, sociology, economics, anthropology and even mathematics or econometrics.

Analysis is necessary, in particular because of the importance of increasingly higher on that behavioral economics is a study currently being animated by the advance of technological progress of the last few decades it has printed. The findings, mainly in the field of neuroscience, made possible a better understanding of the human brain and of the fundamentals on which it builds decision-making. Moreover, when defining the economic science has come far, marked mainly by triggering the biggest crisis since the Great Depression of ' 29-' 33 of the twentieth century, is a reason for which I considered a real importance of this study.

We already have six years from the onset of the deepest recession since 1929, and most economies are still fragile. Unfortunately, with all the efforts, it seems that standard economic theory through the two major directions: interventionism and liberalism, failed to provide sustainable solutions for the rehabilitation of the economy and that's because both the attitude of liberals and interventionists is wrong in terms of the individual and the way he makes decisions.

Both liberalism and interventionism economic models are based on some abstract individuals: selfish and perfectly rational on the one hand, and devoid of any trace of selfishness, always ready to sacrifice for the welfare of society on the other hand. In fact, the individual is a real complex person, with actions that are materialized in failures and with incomprehensible behaviors for the economy. The reality is that people don't always take the best decisions, repeating the same mistakes, they don't know how to calculate risks and make business emotionally motivated, ideas which behavioral economics grasps in great detail.

2. Methodology

In this study, the research strategy, by the nature of the addressed matter, was a deductive one, based on theoretical research reflections of the reference field. Deduction was corroborated with induction, recovery statements and theories provided by the literature on economic practice aimed to support the working hypotheses.

The main research methodology was the quality method. This included data collected from the field literature regarding existing theories. Data collection was done by studying a number of documents: books, articles, encyclopedias and so on, which allowed to build a unitary and systemised information network. Among the research techniques used were the techniques of analysis of mediated content and comparative analysis of existing data, empirical studies in the literature.

3. Literature review

The literature presents behavioral economics as a branch of economy which is based on the assumptions of human behavior, which reflects the results of psychological studies and conclusions from other social sciences and biology. It aims to provide fair descriptive hypotheses about cognitive abilities and the emotional responses of individuals in economical decision-making, integrating in analysis both institutions that prescribe organisational rules and norms of social interaction, as well as the context of specific circumstances (Schwartz 2007, p. 4).

Moreover, behavioral economics seeks to explain why people do not always behave selfishly, why they don't always act in the most rational in economic terms or why attribute a higher value to some objects than other objects that have the same value (Frank, 2006, p. 231-256). In this direction, Gary Becker, Nobel Prize winner, although not a follower of behavioral economics, was arguing that "when studying behavior can no longer be explained according to income or prices, the explanation can be found in the change in tastes" (Becker, 1998, p. 139).

Behavioral economists propose to broaden and improve the traditional ideas with decision-making models borrowed from psychology, multidisciplinary approach through which it proposes.

According to standard economic model people are making decisions in the context of a comprehensive, they know their preferences, their choices are always rational. In addition to the standard model predictions come behavioral economics, which take into account all the fluctuations of human rationality that can be limited by emotions, the gregarious spirit, marketing manipulation, or inability of individuals to estimate the different probabilities. According to behavioral economists, people are variously influenced by fear of failure, of remorse and will often give up some benefits, just to avoid a small risk of feeling that they have failed. Then, people are often influenced by external cues.

For example, Dan Ariely argues that individuals interpret things around in relationship with others and do not have autonomy in thought; moreover they show uncontrolled reactions to certain stimulus such as free or zero, have difficulty in making rational decisions when confronted with situations that require compliance with certain combinations of social standards (favors, friendly applications, affection) and economic norms (paying bills, prices) (Ariely, 2010, p. 87).

In the study of this area of research were numerous notable scientists. Herbert Simon has postulated a reunification between psychology and economics, and has promoted the concept of bounded rationality of persons in general and markets in particular, which is diametrically opposite to the main assumptions of traditional economics, the theory of rational choice (unlimited). According to him, individuals have a limited capacity to process information, are not uniform, subjective, not taking into account all existing information, as did classical economists. Simon, explains why the notion is crucial by citing Weber and Popper, who appreciated that the main task of the social sciences and even one of the main sources of legitimacy is trying to substitute rational explanations with irrational explanations of behaviour of naturally produced knowledge (Simon et al., p. 126). Furthermore, he argues that there is no perfect knowledge, which means that all economic activity implies risk.

Another area of research in behavioral economics is that of decision making under conditions of uncertainty and/or risk. Decision-making in risky situations and uncertainty are not just cognitive activities, because people react in situations of risk on two different levels: at the level of cognitive assessment and a level of emotional reaction. Risk perception and attitude toward risk is related to emotions. Empirical studies by Amos Tversky questioned the assumption that investors are rational. In 1995, Tversky demonstrated the tendency of investors is to make risk-averse choices in gains, and risk-seeking choices in losses. Investors have seemed very risk-averse for small losses but indifferent for a small chance of a very large loss. This violates economic rationality, as it is commonly understood.

Daniel Kahneman, along with Amos Tversky showed that when the potential earnings are released, most people have a behavior that indicates risk aversion (risk-averse), and when you are faced with potential losses, the same people become seekers of risk (risk-seeking), having regard to the conduct of a gambler who raises the stakes in the hope of eliminating losses. This finding has been demonstrated empirically through numerous investigations and led to the rejection of the conclusions of the classical theory of anticipated utility developed by mathematician Daniel Bernoulli.

Also, together with Amos Tversky and others, Daniel Kahneman established a cognitive basis of common human errors using heuristics and prejudices (Kahneman and Tversky 1972 Kahneman, Slovic, Tversky 1974). Research has shown that individuals tend to mimic the gestures and decisions of others. There is so-called "social pressure" to conform with the crowd, even among professionals and financial market analysts. Effect of herd tends to minimize regret, since other behavior imitating induces a sense of comfort among individuals, as well as stimulates rejuvenation of taking responsibilities (Muradoglu, 2010, p. 8). Gregarious behavior also amplifies the effects of the economic and credit cycle the more decisions are becoming more uniform (Rizzi, 2009, p. 89). Furthermore, individuals tend to focus on the present and to undervalue future. The effect of this kind of behavior lies in making decisions by individuals that they will later regret.

In 1988 Shefrin and Thaler have developed a pattern of saving "the behavioral life cycle". According to this model, people don't calculate the savings and expenditure rates so as to maintain a constant level of consumption throughout their lives. Instead, they discover, people prefer immediate gratification and not consumption and expenditure balanced long-term (Urse, 2009, p. 400).

The role of emotions and attitudes that define the decision-making process are beginning to be taken more into account in the context of behavioral economics, with an emphasis on the concept of emotional intelligence and the possibility of purchasing behavior through emotions or affective states that often lies at the cognitive dissonance.

Behavioral economics brings improvements in terms of classical explanation on consumer utility, completing the economical vision with psychological aspects related to the consumer's decision, in this way analyzing: decision-making utility, anticipatory utility, experimental utility, residual utility, diagnostic utility, closely related concepts of behavioral economics tools such as employment effects, the effects of ownership, loss aversion, and status quo. Consumer decision should entail a certain state of satisfaction or better said happiness.

Behavioral economists mention that constant negative relationship between consumption and happiness may be related to the fact that people are not aware of what creates a state of happiness or unhappiness. Every time an individual takes a decision and does not have the expected results or find an alternative that would have had a better

result, is a candidate for regret. Can be taken into account both regret post-decision that appears after the individual has experienced the result of decision and regret in advance that makes its presence felt before it was decided.

Thus, an effect that aversion of regret can have is the consumer inertia. It is for this reason that behavioral economics followers stands the idea that consumer decision must be dealt with and in terms of opportunity costs and the remorse that it entails.

With regard to the concept of comprehensive behavioral economists preferences campaigning for improvements and utility function model by integrating the analysis of preferences. Moreover, behavioral economics opposes under certain circumstances to one of the main hypotheses of neoclassicism, namely selfishness, claiming non-selfish conduct, more specifically the fact that selfish has certain limitations and imperfections.

Therefore, behavioral economics tries to explain (and ultimately to apply those findings in practice), why individuals are often irrational in choices and why the decisions they take are not just the patterns predicted by the classical and neoclassical models.

4. Normative models of decision making

Classical and neoclassical economics have taken into consideration and analyzed only economic and objective factors in decision making. Although they knew that not only objective factors are decisive, classical and neoclassical economics researchers have not given importance to psychological factors in the decision-making process, this way creating the normative models in decision-making. Interested in the mathematics of the alternative route that brings the greatest profit, economists have sought to develop formal procedures which can calculate the optimum decision. The main normative pattern is that of the rationality of the subject decider. It is assumed that, in making its decision, the human subject behaves rationally, seeking always to choose the optimum alternative, that option which assures maximum payoff of all possible alternatives.

The best known regulatory models calculate expected value and expected utility.

4.1 Expected value

Expected value is the benefit-calculated, often, the money-which the decision-maker has in mind in terms of the selection of an alternative. Expected value is a numeric expression and a characteristic of objectivity in the sense that is independent of subjective perception of individuals involved in decision process.

Expected value model is however extremely narrowly, as only a small part of people's decisions to quantifiable economic factors in their monetary value.

4.2 Expected Utility

The expected utility model seeks to overcome the restrictions which the expected value calculation struggles, trying to formalize the decision of areas of activity in which the related gain an option does not have a numerical expression. It starts from the idea that there is a difference between value and utility: the value is a given objective, the utility is subjective perception of a value.

The expected utility model is based on the premise that, in calculating the optimum alternative, the subject considers the usefulness, not the value of each alternative. To give a mathematical expression, this utility is coded by a serial number. This number has relative significance related to the size of complementary alternatives utilities. With all these difficulties, the expected utility model has a psychological validity higher than expected value model.

It is more likely, because it assumes that the choice between the alternatives is determined by its utility, not their value, so the subjective reflex of the value. There is also more general since it applies not only to the calculation of a monetary profit. In addition, in some situations, the human subject actually behaves according to this model.

In experimental research, Payne and colleagues (1988, p. 541) vary the complexity of decisions that some subjects had to take and the time given for choosing an alternative from among several possible. It is found that, in terms of time and/or complexity reduced decision, individuals behave rationally, doing the calculation of expected utility, but

in conditions of time pressure and/or increased complexity of decision making, the subjects used various heuristics and simplified models.

In short, the expected utility model is descriptive for situations in which the subjects have enough time and resources, and prescriptive for complex situations or with time limit on the decision.

The model based on the expected value calculation is essentially prescriptive. In general, both models presented above remain limited due to their original presumptions, decision maker being a rational being who knows all the alternatives and their consequences and which has sufficient time and resources. But, a wealth of experimental data contradicts these suppositions.

5 Descriptive Models of decision making. Bounded rationality.

Although there are valuable for prescriptive purposes, normative models arrive in a considerable difficulty when they are proposed for descriptive theories that explain how people actually develop decisions (Broadhurst, 1976; Kahneman and Tversky,1979; Lee, 1971; Rapaport and Walsten, 1972; Simon, 1976; Slovic, Lichtenstein and Fishoff, 1977).

One of the most proeminent critics of rationalist models was H. Simon, who later won the Nobel Prize for his research on decision theory. Since 1959, H. Simon noted: "Classical theory is a theory of why a man choosing between alternative fixed and known, each being attached consequences also known. When, however, between the decision-maker and the environment goal, there is perception and other cognitive processes, these models cease to be adequate. We need a description of the options that take into account the fact that the alternatives are not data, but are discovered, a description which takes into account the difficulties of determining the consequences of each alternative (Simon, 1959, p. 260).

In this sense, Simon has created model bounded rationality, a basic concept in behavioral economics, which is based on the fact that individuals are limited to the level of information to which they may have access in their minds of cognitive limitations and finite period of time that they are available to make a decision. In his Administrative Behavior, Simon showed that both imaginative decision maker ability and its values are the guarantee of the fact that all the options he has available will be examined with the same level of objectivity. He suggested, instead, that decisions are taken using the same analytical system, but without unlimited information and theoretical skills of the "rational actor". Simon believed that there is a simple relationship between means and goals, and that policymakers will attach most likely values of their actions.

Bounded rationality accepts that decisions are not in a homogeneous medium in which the notion of "public good" is accepted by all, but in a heterogeneous society, where people have different desires and preferences, and decision-making factor must take account of these when you decide what decision to take. Constrained, however, by their own cognitive limits and time, decision-maker subject will chose the satisfactory alternative, not (necessarily) the most optimal. An alternative is considered satisfactory or unsatisfactory with respect to several criteria counted as relevant. In the crowd of alternatives available decision maker will select the first alternative that meets these criteria. It is not necessarily the best, because he does not have sufficient cognitive resources and/or time to make an inventory of all the alternatives and compare their value or utility. In circumstances where the individual is pressured to take a decision quickly, he uses a minimal number of criteria. Otherwise, the decision maker must find an acceptable result, given that applications are competing. Simon suggests that economic actors are calling at heuristic (speculative method of decision-making based on trials, errors and permissive rules) to make decisions, and not the strict rule of optimization.

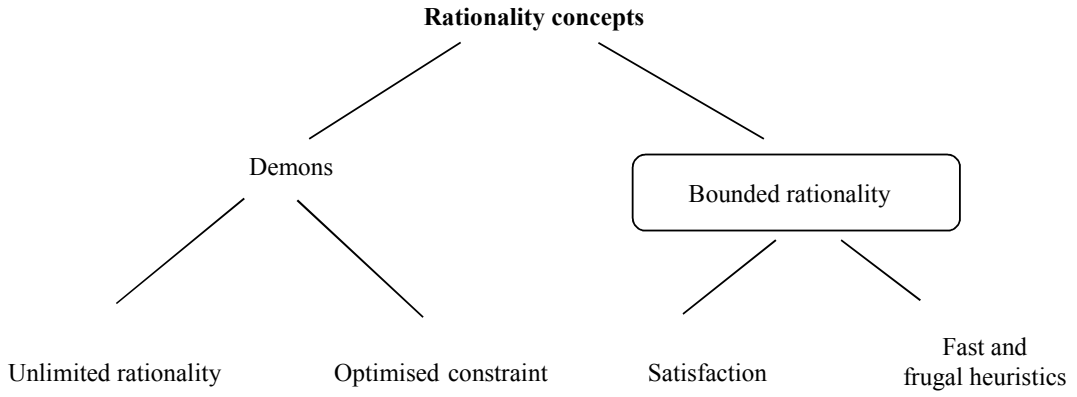

Figure 1: Vision of the concept of rationality
Source: Scheme carried out by author after Lars Bäckman, Claes von Hofsten (2002)-Psychology at the Turn of the Millennium: Cognitive, Biological and Health Perspectives

To highlight existing visions regarding the concept of rationality, we resorted to the format used by Lars Bäckman and Claes von Hofsten. On the one hand, we have the concepts that the authors were called "demons" because of the perfection and their high theoretical level of rationality and optimization under constraints, and on the other side more natural concepts of rationality is limited to those two components satisfaction and heuristics.

It becomes evident, that the previous scheme, bounded rationality does not exclude rationalism, but brings in an authentic plane. Is possible that the rationalism is also applied to the idea of compromise, the question that decision maker asks himself is "which of the existing solutions will be acceptable to a large number of people?".

Many empirical studies of decision-making process (mainly made by Daniel Kahneman) clearly shows that people do not conform to the classical restricted theory of rational choice, since every time has tendency to simplify the facing choice, to ignore some of the information presented, or to make decisions guided by more than instinct after that model optimization.

By analyzing these experiments, Ariel Rubinstein concludes that just because decision-makers do not take the decision "sensible", does not mean that their decision-making process is chaotic, and refers to the distinction made by Simon between procedural rationality and substantive rationality. Substantial rationality refers to behavior that is commensurate with obtaining the desired results within the limits and constraints, and procedural rationality is a behavior that is the result of a proper deliberation (Rubinstein, 1998, p. 187).

Therefore, specific descriptive models is that they focused attention on the mechanisms of rationality in terms of limited knowledge, uncertainty in decision-making; since the businesses are men, it is absolutely necessary to pay attention to, and to examine the cognitive, emotional and subjective factors, working together in making decisions.

Unlike normative, descriptive models have explanatory and predictive value greater than for actual decision-making behavior.

6 Cognitive elements and mechanisms that influence the decision process

Because the mental pattern for choosing alternatives of the decider is essential for understanding and predicting his behaviour, I will analyse some cognitive elements that participate in the decision process.

Behavioral economics studies reveal that decision making is subject to cognitive heuristics, elements that may be considered as predictive for the decision behavior. The most studied of them are cognitive outline, alternative anchoring, the prototypicality degree of alternatives, their memory availability, the retro-assessment of alternatives.

The influence of cognitive outline was brought to light in the studies of A. Tversky and D. Kahneman (1981, 1983), who argued that the way alternatives are formulated leads to activating different cognitive outlines, that influence decision. In an experiment, the respondents were given to resolve matters such as: To eradicate an Asian epidemic, which will result in 600 victims, there are two intervention proposals: A and B. The first group in the experiment had

the following alternatives: if A is applied, 200 people will be saved; if B is applied, there is a 1/3 chance that all are saved and 2/3 chance that none are saved. The second group had to choose between: if A is applied 400 people will die; if B is applied, there is a 1/3 chance that all are saved and 2/3 chance that none are saved. It can be noticed that the alternatives are the same, the only difference is the presentation form: for the first group it was a positive, win-like manner (people will be saved), while for the second group it was a negative, loss-like manner (people will die). The decision made by the two groups should be similar or close, but in reality they are significantly different. In the first group 72% chose proposal A, while 78% of the second group chose proposal B. This demonstrates the influence of cognitive outline, determined by the construction of the alternatives, on decision making.

The input of anchoring alternatives is also sustained by Tversky and Kahneman (1974). The experiment involved two groups of respondents that were asked to solve the following multiplications:

a) 1 x 2 x 3 x 4 x 5 x 6 x 7 x 8 = ?

b) 8 x 7 x 6 x 5 x 4 x 3 x 2 x 1 = ?

The results were very different: in the first group the answer median was 512,in the second group it was 2250, while the correct answer was 40320. It may be explained that the product of the first numbers in multiplication a) is smaller, which leads to underestimating the final calculation, compared to multiplication b), where the effect is opposite. Therefore, the decision regarding the final multiplication result is influenced by the anchor that is used: different anchors determine different decisions, thus different results. The same authors argue that the alternative anchoring influence complex decisions, with interference in attitude and behavior.

The prototypicality degree of alternatives is another cognitive element that can impact decision: the more an alternative is more atypical – standing as a prototype - it is more probable. To highlight it, Medin and Ross (1992) used a set of scenarios that respondents were asked to evaluate as probable or not:

a) A man under the age of 55 suffered a heart attack.

b) A man suffered a heart attack.

c) A smoker suffered a heart attack.

d) A man over the age of 55 suffered a heart attack.

Most respondents considered that c) and d) are much probable than b), their decision was related to the most likely to happen scenario– a prototype - for the described event (a heart attack): a man over the age of 55 and a smoker.

Decisions may be significantly influenced by the degree of memory accessibility of alternatives. Kahneman and Tversky (1983) proved that knowledge, events and alternatives that can be retrieved have a higher probability of manifesting themselves, thus making them more likely to be chosen during decision making. The experiment consisted in asking respondents to estimate the frequency of English words that begin with “r”, followed by assessing the number of words that contain “r”as a third letter. Although the second the frequency is much higher, the respondents considered that the number of words starting with “r” is significantly larger than the one of words containing “r”as a third letter. It may be explained by the easiness of remembering words that start with “r” rather than ones that include it, especially in a certain spot, so accessibility is of great importance when making decisions.

Often, consecutively to a decision, one might proceed to reviewing alternatives, depending on which he asserts the difficulty of the decision. If after making a wrong decision one becomes aware of which was the right decision, it ends up distorting the correct the degree of correct assessment of difficulty of the initial decision by its understatement.

7 Prospect Theory

As a response to expected utility theory, characteristic to the normative pattern of decision making, Daniel Kahneman and Amos Tversky (1979) have published in Econometrica an article entitled Prospect Theory: An Analysis of decision under risk.

The theory is an response to economy's rational decision pattern and it studies decisional behavior confronted with risk, under winning or losing conditions; it is one demonstration of irrational decision, based on the fact that emotion plays a very important role in decision making.

It is underlined by two experimental findings: on the one hand, people give little credit to probable results rather than certain ones, and on the other hand people hate losing more than they like winning. Therefore, two phenomenons occur: the risk aversion when making a decision implying certain gain and risk assuming when decision implies a certain loss.

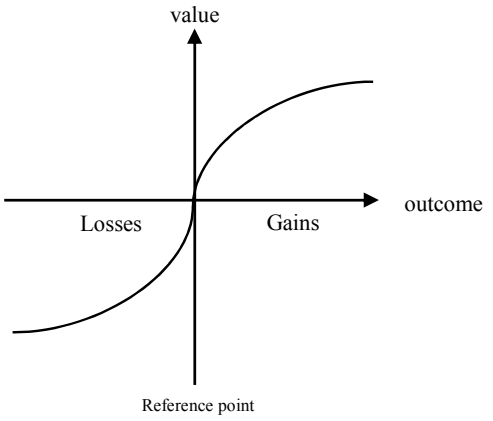

Figure 2: Representation of value function

Source: Kahneman, D., Tversky, A. (1979). *Prospect theory: An analysis of decision under risk*. Econometrica, 47*(*2)

From analysing the above graphic it may be observed that while on the positive the curve subscribes to marginal utility principle, capping relatively fast, while on the negative it accelerates, tending to touch the reference point. In fact, the feeling one has when losing is much stronger than he has when winning, leading to an asymmetric behavior. In other words, one's attitude towards risk is the result of one's situation on the market. Due to this element there are noticeable differences of liquidity on the real estate market between price increase and price decrease.

The issue is the framing effect, the different way to interpret the same situation. A wrong decision follows the framing effect: people make divergent choices in identical situation because they justify them differently and the decision is made on the new interpretation, the new frame. To evaluate unequally loss relative to win is different mental frame of the same situation. It is about risk aversion to losing: making a decision that would prevent loss is more aggressive than winning.

Prospect theory may take a more prosaic form: if I give you a nice house, a Lamborghini, I transfer one million dollars in your account and I offer you social networking and then, after a while, I take it all back, you will be in a worse situation than the one you started with and none of it would have happened (Taleb, p 419).

Therefore, Kahneman and Tversky prove that decisions are strongly influenced by how you present the problem. The purpose of the theory is to show that the way the situations are framed can and probably will manipulate how decisions are made. Their experiments have revealed that people have asymmetric attitudes towards risk and that loss generates stronger feelings than winning does. They succeeded to revolutionise the classic and neoclassic approach, based on normative patterns, "ideals" of economic action, where human seek to maximise the utility of possible results, making rationally choices between known probabilities. The two of them made possible a definition, an explanation for irrational paradoxes existing in economic practice, such as the habit of holding on to shares of low value or sale

when the market is up, the capacity of risking less for certain gain and more for possible loss, the input in decision of how a situation is described or the possible outcomes, and so on.

To better illustrate how the prospect theory contributed, I consider a contemporary example: it is said that 75% of United Kingdom and 52% of United States households do not have stock portfolio. At the same time, a large part of these populations constantly invest in public lottery.

According to the traditional views, this is highly irrational and conflicting. If one does not buy stock because risk-aversion, the one should not play the lottery. But if one is risk-assuming to play the lottery, then one should not avoid stock investment.

The explanation may be found in prospect theory: what determines irrational behaviour is aversion to disappointment: people feel more suffering from losing than winning, even if it has the same monetary value. Most people assume that gain and loss are psychologically symmetrical, but studies have shown that losing is three times more painful than the pleasure from winning. So, the logical behavior, seeking to prevent loss, would avoid the situations when losses could be substantial, such as stock exchange.

8 Conclusions

Through this study we have tried to highlight the contributions that behavioral economics has in explaining the decision making process. Research within this field has shown that individuals deviate from the rational pattern, thus descriptive decision patterns are created. They assume that the decision maker, given limited time and computing resources, is compelled to resort to various heuristic decision and simplified representations of alternatives on which to decide. Of these, cognitive outlines, anchoring alternatives, the degree of prototypical alternatives, their availability in memory and retro - assessment alternatives were considered predictive of decisional behavior studies conducted by behavioral economists.

Also, the prospect theory developed by Kahneman and Tversky makes a significant contribution in explaining the decision making process. The proposed theory shows that the way in which the data is framed has the potential to manipulate people's decisions and their experiments have shown that people have asymmetric attitudes towards risk and the losses are felt more strongly than gains. The findings validate the effects observed in economic behavior, generally, and financial markets, in particular, and their merit is that they demonstrated, empirically, that the economic decisions people take tend to repeat certain logical errors that lead to suboptimal results.

Their work and of many other authors showed that, in reality, people are subject to perceptual errors, to cognitive biases, to way they interpret the situation, to consequences of the herd spirit and to mood, results that oppose neoclassic economic theories that are based on human assumption as a rational economic agent acting optimally, analytical, based on all available information.

Therefore, what I emphasized in this research is that for a proper analysis of the attitudes and decision-making mechanisms subjective and psychological behaviors should be taken into consideration, because it moves the economy forward by giving new coordinates to traditional and classic economic literature. It is true that this intricate approach for decision making hampers economic pattern development, but taking into account all factors involved in how individuals make decisions, it enables a better explanation of economic problems and it enhances solutions finding.

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